

## Claims

- [c1] A remote diagnostic unit for use with a heavy vehicle, comprising:
- a pin connector communicating with a data bus on the vehicle, the pin connector receiving a signal from the data bus;
  - a microcontroller receiving and interpreting a standard diagnostic message as a function of the signal received by the pin connector; and
  - a plurality of lights controlled by the microcontroller as a function of the standard diagnostic message.
- [c2] The remote diagnostic unit as set forth in claim 1, wherein the microcontroller includes a UART.
- [c3] The remote diagnostic unit as set forth in claim 1, further including:
- a reset switch, communicating with the microcontroller, for at least one of clearing the diagnostic message from an ECU and causing the ECU to enter a self-configuration mode.
- [c4] The remote diagnostic unit as set forth in claim 1, wherein the diagnostic message indicates a status of an

ABS ECU on the vehicle.

- [c5] The remote diagnostic unit as set forth in claim 1, wherein the data bus is a J1587 serial data bus, further including:  
a plurality of the pin connectors for communicating with the J1587 serial data bus.
- [c6] The remote diagnostic unit as set forth in claim 1, further including:  
a signal conditioner, between the pin connector and the microcontroller, for conditioning the signal received by the pin connector into the standard diagnostic message, which is interpreted by the microcontroller.
- [c7] The remote diagnostic unit as set forth in claim 6, wherein the signal conditioner is an RS485 device.
- [c8] The remote diagnostic unit as set forth in claim 1, wherein the microcontroller is a PIC16F870 device.
- [c9] The remote diagnostic unit as set forth in claim 1, wherein the lights include light emitting diodes.
- [c10] A remote diagnostic communication interface for use with a heavy vehicle, comprising:  
a pin connector communicating with a data bus on the vehicle, the pin connector receiving a signal from the

data bus;  
means for conditioning the signal and producing a standard diagnostic message as a function of the signal;  
means for receiving and interpreting the standard diagnostic message; and  
a plurality of lights being selectively illuminated as a function of the standard diagnostic message.

- [c11] The remote diagnostic communication interface as set forth in claim 10, wherein the means for conditioning includes an RS485 device.
- [c12] The remote diagnostic communication interface as set forth in claim 10, wherein the means for receiving and interpreting the standard diagnostic message includes a UART.
- [c13] The remote diagnostic communication interface as set forth in claim 12, wherein the means for receiving and interpreting the standard diagnostic message includes a PIC16F870 device.
- [c14] The remote diagnostic communication interface as set forth in claim 10, wherein the pin connector communicates with the data bus via a vehicle connector.
- [c15] The remote diagnostic communication interface as set forth in claim 10, further including:

a reset switch, communicating with the means for receiving and interpreting the standard diagnostic message, for at least one of selectively clearing an ECU and selectively causing the ECU to enter a reconfiguration mode.

[c16] The remote diagnostic communication interface as set forth in claim 15, wherein:  
the reset switch is activated in response to a magnet;  
the ECU is cleared when the reset switch is activated for a first period of time; and  
the ECU enters the reconfiguration mode when the reset switch is activated for a second period of time.

[c17] The remote diagnostic communication interface as set forth in claim 10, wherein:  
the lights are light emitting diodes; and  
the standard diagnostic message indicates a fault status of an associated ECU.

[c18] A system for diagnosing an electrical system on a heavy vehicle, the system including:  
an electronic control unit;  
a data bus communicating with the electronic control unit; and  
a remote diagnostic unit, including:  
a pin connector;

a microcontroller receiving and interpreting a standard diagnostic message as a function of the signal received by the pin connector; and  
a plurality of lights controlled by the microcontroller as a function of the standard diagnostic message.

- [c19] The system for diagnosing an electrical system as set forth in claim 18, further including:  
a reset switch, communicating with the microcontroller, for one of clearing the diagnostic message from an ECU and transmitting a self-configuration command to the ECU.
- [c20] The system for diagnosing an electrical system as set forth in claim 18, wherein the data bus is a J1587 serial data bus.
- [c21] The system for diagnosing an electrical system as set forth in claim 18, further including:  
a vehicle pin connector, communicating with the data bus, which mates with the pin connector of the remote diagnostic unit.
- [c22] The system for diagnosing an electrical system as set forth in claim 18, wherein the standard diagnostic message indicates a fault status of the electronic control unit.

- [c23] The system for diagnosing an electrical system as set forth in claim 18, wherein the microcontroller includes a UART.
- [c24] The system for diagnosing an electrical system as set forth in claim 18, wherein the data bus is a J1587 serial data bus.
- [c25] A method for remotely displaying a fault status of an electronic control unit, the method comprising:  
determining the fault status of the electronic control unit;  
transmitting a signal from the electronic control unit to the data bus, the signal indicating a standard message for identifying a fault status of the electronic control unit;  
receiving the signal into a remote diagnostic unit;  
interpreting the signal as the standard message within the remote diagnostic unit; and  
illuminating selected lights on the remote diagnostic unit as a function of the standard message.
- [c26] The method for remotely displaying a fault status as set forth in claim 25, wherein the interpreting includes:  
conditioning the signal into the standard message; and  
identifying the fault status as a function of the standard

message.

- [c27] The method for remotely displaying a fault status as set forth in claim 26, wherein:  
the conditioning includes:  
transforming the signal into the standard message in a circuit including an RS485; and  
the identifying includes:  
identifying the fault status within a UART included within a microcontroller of the remote diagnostic unit.
- [c28] The method for remotely displaying a fault status as set forth in claim 25, further including:  
activating a reset switch for at least one of clearing the electronic control unit and causing the electronic control unit to enter a reconfiguration mode.
- [c29] The method for remotely displaying a fault status as set forth in claim 28, wherein the reset switch is a magnetic switch, the activating including:  
passing a magnet within a range for causing a response in the magnetic switch.